

## TWO NEW SPECIES OF TENTHREDINIDAE (HYMENOPTERA, TENTHREDINIDAE) FROM CHINA

YAN Yu Chen, WEI Mei Cai\*, HE Ying-Ke

Lab of Insect Systematics and Evolutionary Biology, Central South University of Forestry and Technology, Changsha, Hunan 410004, China

**Abstract** Two new species of Tenthredinidae from China are described: *Empria zhangi* Wei et Yan, sp. nov. and *Perinaura xanthogaster* Wei et He, sp. nov. The genus *Perinaura* Hartig, 1837, as well as *Empria* (*E.*) *rubicola* Ermolenko, 1971 and *E.* (*E.*) *itdmene* Malaise, 1932, are firstly recorded from China.

**Key words** Hymenoptera, Tenthredinidae, *Empria*, *Perinaura*, new species, China.

Mt. Heng is an isolated mountain located in the centre of Hunan Province, China. The highest altitude of the mountain is 1 289 m. The dominant vegetation types of the region are secondary deciduous broadleaf forests and artificial forests, as well as some mosaic distributed evergreen coniferous forests. The sawfly fauna of the region have been investigated during the past 5 years. About 70 sawfly species belonging to 40 genera and 7 families have been collected. Among them, *Astethomostus tegularis* Wei et Zhang, 2005 (Zhang & Wei, 2005), *Phymatoceroopsis mdanogaster* He, Wei et Zhang, 2005, *Aglaostigma laticinctum* He, Wei et Zhang, 2005 (He et al., 2005), *Tenthredo hongshana* Wei et Yan, 2008, *Tenthredo pseudocylindrica* Wei et He, 2008 (Yan et al., 2008), *Arge albocaudalia* Wei et Yan (Yan et al., 2009) have already been reported. In this paper, two further new species of Tenthredinidae are described from the mountain: *Empria zhangi* Wei et Yan, sp. nov., *Perinaura xanthogaster* Wei et He, sp. nov. The former were also collected from Mt. Mufushan of Hunan, Mt. Qiling of Shaanxi and Mt. Mao'er of Guangxi, China. Type specimens of the new species are kept in the Insect Collection of Central South University of Forestry and Technology, Changsha, Hunan Province, China.

### 1 *Empria zhangi* Wei et Yan, sp. nov. (Figs 1–6)

Female. Body length 6.5–7.0 mm (Fig. 1). Body black; broad spot on posterior and upper corner of pronotum, tegula, membranous blotch on first abdominal tergite, narrow stripe on posterior margin of each abdominal tergites and sternites, a pair of large membranous maculae on each of lateral side of 2<sup>nd</sup>–3<sup>rd</sup> tergites, a pair of small membranous maculae on lateral sides of 4<sup>th</sup> tergite, yellowish white. Legs black, apical 1/3 of fore femur, anterior side of tibia and of tarsus, extreme apex of middle femur, basal 3/4 of middle and of hind tibiae, tibial spurs, basal half of metabasitarsus,

yellowish brown. Wings hyaline, stigma and veins black brown. Body hairs pale brown.

Basal half of clypeus, supraclypeal area, hind orbit with fine and shallow punctures, feebly shining; malar space finely and densely microsculptured, inner orbit and frons indistinctly microsculptured; prescutum, dorsal side of scutum with fine and shallow punctures, lateral sides of mesoscutellum with weak and obscure punctures, other part of thorax without puncture; lower half of mesepimeron, middle part of metapleuron naked, without hairs, strongly shining; abdominal tergites feebly coriaceous, slightly shining.

Anterior margin of clypeus with 2 large lateral corners and a small middle tooth, with low and obtuse middle carina; labrum small, apex round; malar space as long as diameter of ocellus; shortest distance between eyes 1.3 times as long as height of eye; frons flat, slightly below top of eyes, without frontal wall, lateral furrow of frons absent; lateral fovea shallow and furrow-like, middle fovea broad and large, roundish, with a small pit at middle; POL: OOL: OCL = 7: 13: 8; intercellular furrow broad and deep, postocellar furrow fine and shallow; postocellar area weakly elevated, 2.5 times as broad as long, lateral furrows short and ditch-like, divergent backwards, not extending to posterior margin of head; head behind eyes about 1/3 length of eyes in dorsal view; occipital carina fine and low, extending to posterior margin of temple. Antenna as long as abdomen, slightly longer than head and thorax together, pedicellum broader than long, flagellum distinctly compressed, 3<sup>rd</sup> antennomere slightly longer than 4<sup>th</sup> and 5<sup>th</sup> antennomeres as 9: 8: 7, 8<sup>th</sup> antennomere 2.8 times longer than wide. Mesoscutellum flat, distinctly below top of mesonotum, anterior margin triangularly protruding; posttergite narrow and small, without middle carina; cenchri large, broader than long as 3: 2, distance between them slightly longer than

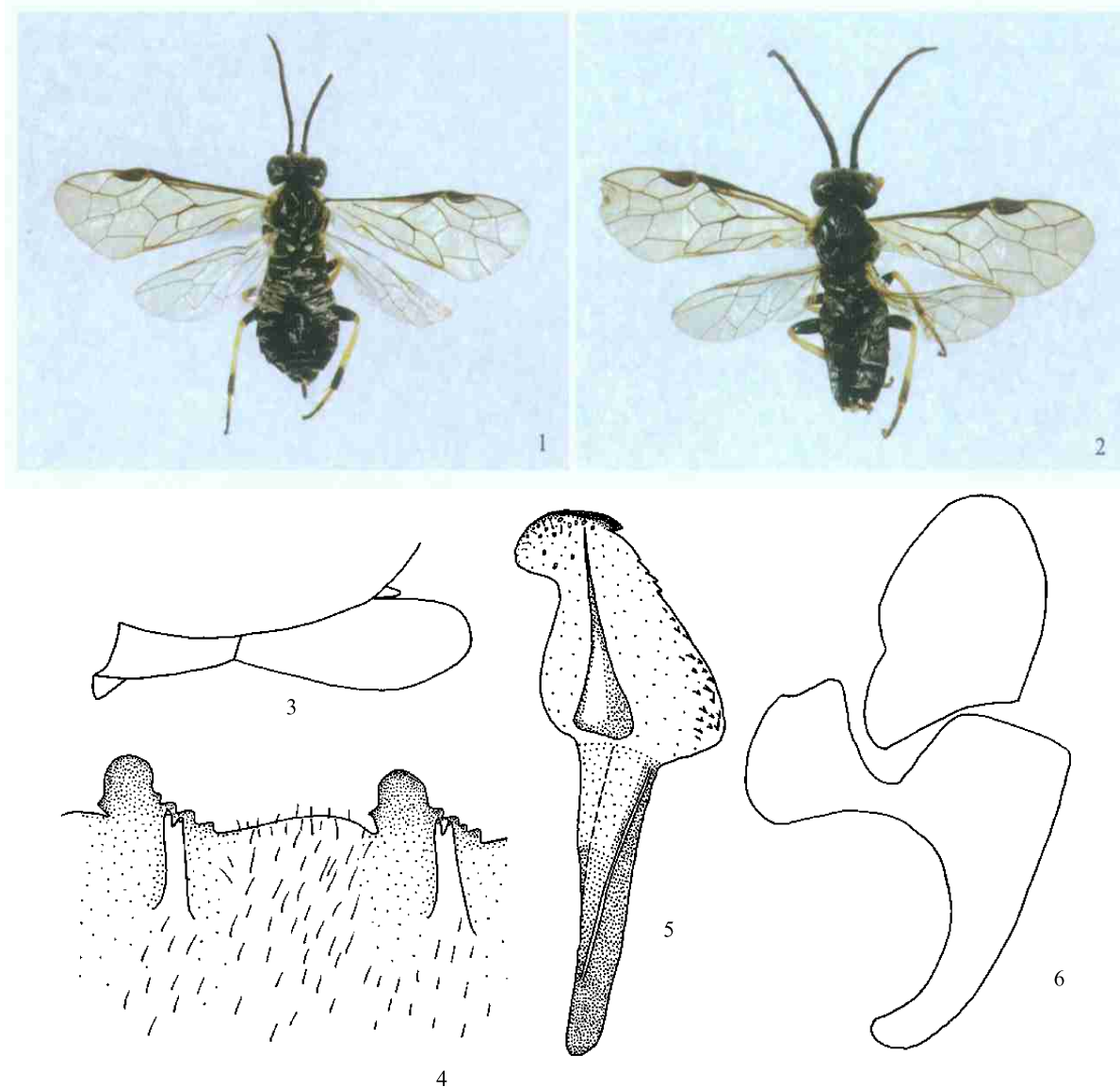
This work was supported by the National Natural Science Foundation of China (30771741, 30571504), also partly supported by Scientific Research Fund of Central South University of Forestry & Technology (06009B).

\* Corresponding author, E-mail: weimc@126.com

Received 6 May 2008, accepted 3 Mar. 2009.

breadth of a cenchrus. Hind basitarsus slightly longer than following 3 tarsomeres together; claw without basal lobe, with an inner tooth beyond middle, about half as long as apical tooth. Fore wing with cell  $1R_1$  and  $1R_s$  combined, vein  $R+M$  punctiform,  $cu_a$  joining cell  $1M$  at basal  $3/8$ , lower corner of cell  $2R_s$  strongly extending. Hind wing with cell  $R_s$  open, cell  $M$  close, petiole of

hind anal cell  $1/3$  length of  $cu_a$ . Ovipositor slightly longer than length of middle tibia, sheath distinctly longer than basal plate, apex round in lateral view (Fig. 3), narrow and long in dorsal view. Lancet with 19 serrulae, middle serrulae protruding, apex round, each with 1 inner and 4-5 outer subbasal teeth,  $10^{th}$ - $11^{th}$  serrulae as in Fig. 4.



Figs 1-6. *Empria zhangii* Wei et Yan, sp. nov. 1. Adult female. 2. Adult male. 3. Sheath in lateral view. 4. The  $10^{th}$ - $11^{th}$  serrulae. 5. Penis valve. 6. Harpe and parapenis.

Male. Body length 6 mm (Fig. 2); color and structure similar to female except for: antennal flagellum strongly compressed,  $3^{rd}$  and  $4^{th}$  antennomere distinctly broader than first and second antennomeres,  $3^{rd}$  antennomere slightly shorter than  $4^{th}$  one,  $4^{th}$  antennomere 2.2 times longer than wide; subgenital plate slightly broader than long, apex round; penis valves, harpe and parapenis as in Figs. 5-6.

Distribution. China (Shaanxi, Hunan, Guangxi).

Etymology. This new species is named after the

surname of the collector of the type, Prof. Zhang Shao Bing.

Holotype ♀, Nantianmen ( $27^{\circ} 14' N$ ,  $112^{\circ} 51' E$ , alt. 1 000 m), Mt. Heng, Hunan, China, 11 Apr. 2004, coll. by LIU Wei Xing. Paratypes: 2 ♀♀, Nantianmen ( $27^{\circ} 14' N$ ,  $112^{\circ} 51' E$ , alt. 1 000 m), Mt. Heng, Hunan, China, 11 Apr. 2004, coll. by ZHANG Shao Bing; 1 ♂, data same as the holotype; 1 ♂, Mt. Mufu ( $28^{\circ} 58' N$ ,  $113^{\circ} 49' E$ ; alt. 1 200 m), Pingjiang, Hunan, China, 1 May, 2001, coll. by WEI Mei Cai;

1 ♀, Mt. Qingling (33° 55' N, 108° 00' E), Shaanxi, China, 8 May, 1980; 2 ♀ ♀, Jiuniutang (25° 53' N, 110° 29' E, alt. 1164 m), Mt. Maoer, Guangxi, China, 29 Mar. 2006, coll. by. XIAO Wei.

Remarks. This new species is similar to *Empria sulcata* (Wei et Nie, 1998), but differs from the latter in the membranous maculae on abdominal tergites smaller, the 4<sup>th</sup> tergite with an indistinct membranous macula, frons without lateral furrow, fore wing with cell 1R<sub>1</sub> and 1Rs merged, petiole of hind anal cell very short, about 1/3 length of *cu a*, penis valve in male not extending at apex but just with a short dent (in *sulcata*, the membranous maculae on the 2<sup>nd</sup>-4<sup>th</sup> tergites larger, lateral furrows of frons sharp and deep, fore wing with cells 1R<sub>1</sub> and 1Rs not merged, petiole of hind anal cell about 1/2 length of *cu a*, penis valve in male strongly protruding at apex, without any dent).

The 7 known species of the genus from China can be separated by following key. Two of them, *E. (E.) rubicola* Ermolenko, 1971 and *E. (E.) itelmena* Malaise, 1932, are recorded from China for the first time.

1. Clypeus without middle tooth, base of anterior incision of clypeus round; cell M open in hind wing; occipital carina absent, a short mandibular carina present; posterior margin of each abdominal tergite yellow brown; cells 1R<sub>1</sub> and 1Rs separated in forewing. Heilongjiang, North part of Palaearctic region ..... *E. (Parataxonius) candidata* (Fallen, 1808)  
Clypeus with a distinct middle tooth; cell M close in hind wing; occipital carina present ..... 2
2. Basal anal cell in forewing broadly open at apex; claw small without inner tooth; cells 1R<sub>1</sub> and 1Rs separated in forewing; clypeus and tegula black. Zhejiang, Shanxi ..... *E. (E.) wui* Wei et Nie, 1998  
Basal anal cell in forewing closed; claw with a distinct inner tooth ... 3
3. Tegula largely black with pale margin; cells 1R<sub>1</sub> and 1Rs separated in forewing; postocellar area broader than long as 3:1. Inner Mongolia, Europe ..... *E. (E.) sexpunctata* Serville, 1823

Tegula largely or entirely yellow brown to white; cells 1R<sub>1</sub> and 1Rs merged together in fore wing ..... 4

4. Clypeus yellow brown; hind femur partly pale brown; at least abdominal tergites 2-6 each with a pair of whitish membranous blotches ..... 5

5. Clypeus black; hind femur entirely black; at most abdominal tergites 2-5 each with a pair of membranous blotches ..... 6

5. Upper half of mesepisternum yellow brown; head distinctly dilated behind eyes in dorsal view. Heilongjiang, E. Siberia .....  
..... *E. (E.) rubicola* Ermolenko, 1971

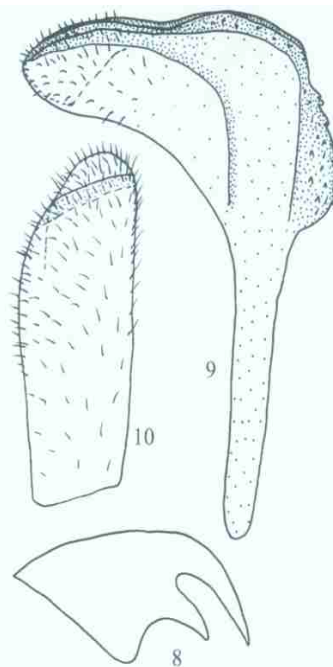
Mesepisternum black entirely; head narrowing behind eyes in dorsal view. Heilongjiang, E. Siberia ... *E. (E.) itelmena* Malaise, 1932

6. Lateral side of frons without furrow; abdominal tergites 2-3 each with a pair of membranous blotches; middle serrulae lobe like protruding 3<sup>rd</sup> and 4<sup>th</sup> antennomeres broader than scape in male; penis valve with an apical process. Shaanxi, Hunan, Guangxi .....  
..... *E. (E.) zhangae* Wei et Yan, sp. nov.

Lateral side of frons with a deep furrow; abdominal tergites 2-5 each with a pair of membranous blotches; middle serrulae oblique, slightly protruding 3<sup>rd</sup> and 4<sup>th</sup> antennomeres narrower than scape in male; penis valve without apical process. Zhejiang, Hunan .....  
..... *E. (E.) sulcata* Wei et Nie, 1998

2. *Perineura xanthogaster* Wei et He, sp. nov. (Figs. 7-10)

Male. Body length 7 mm (Fig. 7). Head and thorax black, basal 2/3 of each mandible, labrum, clypeus, lower half of inner orbit, outer side of temple, hind orbit, broad posterior margin and lower part of anterior margin of pronotum, tegula, broad anterior margin of mesoscutellum, broad stripe on middle of and anterior margin of mesepisternum, katapimeron largely, metepisternum, yellowish white; abdomen yellowish brown, basal 2/3 of first abdominal tergite, a narrow transversal furrow on base of 2<sup>nd</sup> abdominal tergite black. Legs yellowish brown, coxae and trochanters yellowish white, hind tarsus fuscous. Wings hyaline, stigma and veins black brown. Body hairs pale brown.



Figs 7-10. *Perineura xanthogaster* Wei et He, sp. nov. 7. Adult male. 8. Claw. 9. Penis valve. 10. Harpe.

Clypeus with distinct microsculptures and obscure punctures, hind orbit minutely microsculptured, frons

weakly microsculptured, posterior slope of mesoscutellum with sparse and large punctures, other part of thorax

strongly shining, without puncture; abdomen without distinct microsculpture.

Clypeus small, anterior margin roundly incised to a depth of 2/5 length of clypeus, lateral lobe round; labrum round at apex; mandible thick and short, inner tooth obtuse; malar space about 1.5 times diameter of ocellus; eyes small, inner margins of eyes slightly convergent downward, shortest distance between eyes 1.7 times as long as height of eye; middle fovea broad and large, open above; lateral fovea furrow-like, open upwards and downwards; frons slightly below top of eyes, lateral wall of frons narrow and low but distinct; POL: OOL: OCL= 1: 3: 1; interocellar furrow broad and shallow, postocellar furrow fine and weak; postocellar area extremely short, small, much wider than long as 3: 1; lateral furrows short, very deep, punctiform, parallel to each other; head behind eyes short, convergent backward distinctly, about 1/4 length of eyes in dorsal view; occipital carina low and weak, distinct in upper 2/3, almost absent in lower 1/3. Antenna as long as abdomen, pedicellum as long as wide, 3<sup>rd</sup> antennomere slightly longer than 4<sup>th</sup>, flagellum weakly compressed, apical antennomeres not distinctly reduced in length. Middle furrow of prescutum narrow and deep; mesoscutellum flat, without carina and peak; posttergite large and broad, without middle carina; metapostnotum slightly constricted at middle, with obtuse carina. Hind basitarsus slightly shorter than following 4 tarsomeres together; claw without basal lobe, slightly broadened at base, inner tooth distinctly shorter than outer tooth (Fig. 8). Fore wing with cell 2Rs distinctly longer than 1Rs, lower outer corner hardly extending; vein 2r joining cell 2Rs at apical 1/3, vein 2m cu joining cell 2Rs at basal 1/4, vein R+ M 1.5 times as long as first abscissa of Rs, cu a joining cell 1M at basal 1/3, anal cell with a short and straight cross vein at basal 1/3; hind wing with complete marginal vein, without closed cell M. Subgenital plate distinctly longer than broad, narrow and truncate at apex; penis valve as in Fig. 9, harpe long and narrow as in Fig. 10.

Female. Unknown.

Distribution. China (Hunan).

Etymology. The specific epithet is derived from the Latin words *xanthos*, meaning yellow, and *gaster*,

meaning abdomen, indicating the abdomen of the new species yellowish brown contrasting to the black head and thorax.

Holotype ♂, Nantianmen (27° 14' N, 112° 51' E; alt. 1000-1100 m), Mt. Heng, Hunan, China, 11 Apr. 2004, coll. by LIU Wei Xing.

Remarks. *Perinaura* Hartig, 1837 is firstly recorded in China. It is a small sawfly genus of Tenthredininae. Ten species have been described in the world till end of 2007, 1 distributing in Europe and 9 species distributing in Japan only. This new species could be easily recognized from other species of the genus by the smaller body, abdomen yellowish brown except for the first tergite, flagellum black with pale stripe on outer side, wings hyaline, stigma blackish brown entirely, occipital carina distinct on upper 2/3, obscure on lower 1/3, mesepisternum black with a broad transversal whitish yellow band, and the dorsal anterior lobe of penis valve subtriangular.

**Acknowledgement** Our cordial thanks are due to Dr. Stephan Blank of Senckenberg Deutsches Entomologisches Institut of Germany for his kindly help in describing morphological characters of *Empria sexpunctata* and *Empria mongolia*.

## REFERENCES

- He, Y-K, Wei, M C and Zhang, S-B 2005. Two new species of Tenthredinidae from China (Hymenoptera, Tenthredinidae). *Acta Zootaxonomica Sinica*, 30 (3): 618-621. [动物分类学报]
- Wei, M C, Nie, H Y and Tager, A. 2006. Sawflies (Hymenoptera: Symphyta) of China Checklist and Review of Research. Pp. 505-574 In: Blank, S. M., Schmidt, S. and Tager, A. (eds), Recent Sawfly Research: Synthesis and Prospects. Goecke & Evers, Keltm. 704 pp.
- Zhang, S B and Wei, M C 2005. A new species of *Aethamostus* from China (Hymenoptera, Blennocampidae). *Acta Zootaxonomica Sinica*, 30 (3): 622-624. [动物分类学报]
- Yan, Y C, Wei, M C and He, Y-K 2008. Two new species of *Tenthredo* from China (Hymenoptera: Tenthredinidae). *Acta Zootaxonomica Sinica*, 33, (2): 282-286. [动物分类学报]
- Yan, Y C, Wei, M C and He, Y-K 2009. One new species of *Arga* Schrank from China (Hymenoptera, Argidae). *Acta Zootaxonomica Sinica*, 34 (1): 58-61. [动物分类学报]
- Wei, M C and Nie, H Y 1998. Hymenoptera: Pamphilidae, Cimbicidae, Argidae, Diprionidae, Tenthredinidae, Cephidae. In: Wu, H (ed.), Insects of Longwangshan. Chinese Forestry Press, Beijing. 344-391.

## 中国叶蜂科 (膜翅目) 二新种

晏毓晨 魏美才\* 贺应科

中南林业科技大学昆虫系统和进化生物学研究室 湖南长沙 410004

**摘要** 记述中国叶蜂科两新种: 张氏斑腹叶蜂 *Empria zhangii* Wei et Yan, sp. nov. 和黄腹凹唇叶蜂 *Perinaura xanthogaster* Wei et He, sp. nov.。凹唇叶蜂属 *Perinaura* Hartig, 1837 是中国新记录属, 斑胸斑腹叶蜂 *Empria* (*E.*) *nubilola* Ermolenko, 1971 和黄唇斑腹叶蜂 *E.* (*E.*) *itdmena* Malaise, 1932 是中国新纪录

种。新种模式标本保存在中南林业科技大学昆虫模式标本室。

张氏斑腹叶蜂 *Empria zhangii* Wei et Yan, sp. nov. (图 1~6)  
鉴别特征 本种与 *E. sulcata* Wei et Nie, 1998 比较近似, 但腹部背板膜斑较小, 第 4 节背板无明显膜斑, 头部无额侧

\* 通讯作者。

沟, 前翅 1R<sub>1</sub> 与 1Rs 合并, 后翅臀室柄长约为 cu a 脉 1/3 长, 雄虫阳茎瓣顶角不突出, 具短刺突等, 容易鉴别 (*E. sulcata* 腹部第 2~4 背板膜斑椭圆形, 头部额侧沟锐深, 前翅 1R<sub>1</sub> 与 1Rs 分离, 臀室柄约为 cu a 脉 1/2 长, 雄虫阳茎瓣顶角强烈突出, 无短刺突)。

正模 ♀, 湖南衡山南天门, 海拔 1 000 m, 2004-04-11, 刘卫星; 副模: 2♀ ♀, 湖南衡山南天门, 2004-04-11, 张少冰; 1 ♂, 数据与正模相同; 1 ♂, 湖南平江幕阜山, 2001-05-07, 魏美才; 1♀, 陕西秦岭, 1980-05-08; 2♀ ♀, 广西猫儿山九牛塘, 2006-03-29, 肖炜。

词源: 本种根据标本采集人之一姓氏定名。

关键词 膜翅目, 叶蜂科, 斑腹叶蜂属, 凹唇叶蜂属, 新种, 中国.

中图分类号 Q969.542.6

黄腹凹唇叶蜂 *Perineura xanthogaster* Wei et He, sp. nov. (图 7~10)

鉴别特征 体型很小, 头胸部黑色, 口器、腹部和足黄褐色, 后颊脊中上部比较明显, 下部模糊, 触角鞭节黑褐色, 外侧具淡色条斑, 翅透明, 翅痣一致黑褐色, 中胸前侧片黑色, 具淡色横斑, 阳茎瓣头叶亚三角形等, 容易鉴别。

正模 ♂, 湖南衡山南天门, 海拔 1 000~1 100 m, 2004-04-11, 刘卫星。

词源: 本种的种加词由拉丁文 *xantho* (黄色) 和 *gaster* (腹部) 两部分组成, 指本种腹部是黄褐色, 与黑色的头胸部对比明显。

更正:  
《动物分类学报》2009 年第 1 期 27 页更正如下: 陈万鹏 贝纳新\* 高 萍。  
\* 通讯作者.